

CLAIMS

What is claimed is:

- 1 1. A high temperature rigid fiber board formed by a process
2 comprising the steps of:
3 providing a fibrous material, the fibrous material including
4 alumina silica fiber, soluble fiber, mineral wool or a combination
5 thereof;
6 performing fiberization;
7 forming a fibrous mat;
8 accumulating layers of built-up fibrous mat;
9 heating and pressing the fibrous mat to achieve a desired
10 thickness thereof; and
11 drying the fibrous mat to form a fibrous high temperature
12 pressed board product.
- 1 2. The fiber board formed by a process in accordance with
2 claim 1, the process further comprising the step of: adding a filler
3 material.
- 1 3. The fiber board formed by a process in accordance with
2 claim 1, the process further comprising the step of: adding
3 dry/granular binder.
- 1 4. The fiber board formed by a process in accordance with
2 claim 2, the process further comprising the step of: adding
3 dry/granular binder.
- 1 5. The fiber board formed by the process of claim 3, further
2 comprising the step of adding the binder just after the fiberization
3 step and before the formation of the fibrous mat.

1 6. The fiberboard formed by the process of claim 3, further
2 comprising the step of adding the binder at the fiberization step and
3 before the formation of the fibrous mat.

1 7. The fiberboard formed by the process of claim 3, further
2 comprising the step of adding water to dissolve the binder.

1 8. The fiberboard formed by the process of claim 7, wherein
2 the water is applied just prior to the hot pressing step.

1 9. The fiberboard formed by the process of claim 7, wherein
2 the water is added in the form of encapsulated moisture in the same
3 vicinity the binder is added.

1 10. A fibrous board comprising a body of fibers adhered
2 together.

1 11. The fibrous board of claim 10, wherein the fiber is selected
2 from the group consisting of alumina silica fiber, soluble fiber, mineral
3 wool or any combination of thereof.

1 12. The fibrous board of claim 10, comprising a body of
2 refractory ceramic fiber and mineral wool adhered to the refractory
3 ceramic fiber.

1 13. The fibrous board of claim 11, wherein the ceramic fiber
2 and mineral wool are adhered by at least one binder.

1 14. The fibrous board of claim 13, wherein the at least one
2 binder is an inorganic binder.

1 15. The fibrous board of claim 14, wherein the inorganic
2 binder is selected from the group consisting powder or granular

3 potassium silicate, sodium silicate or other silicate materials, or
4 phosphate or phosphate based materials and combinations thereof.

1 16. The fibrous board of claim 15, further comprising at least
2 one filler material selected from the group consisting of clays,
3 cements, perlite or vermiculite and combinations thereof.

1 17. The fibrous board of claim 13, further comprising at least
2 one filler material selected from the group consisting of clays,
3 cements, perlite or vermiculite and combinations thereof.

1 18. The fibrous board of claim 15, wherein the fiber weight
2 percent is about 70-98%, the weight percent of binder is 2-20%, and
3 the weight percent of filler is 0-15%.

1 19. The fibrous board of claim 18, wherein the board is greater
2 than 50% inorganic.

1 20. The fibrous board of claim 19, wherein the board is greater
2 than 75% inorganic.

1 21. The fibrous board of claim 20, wherein the board is greater
2 than 85% inorganic.

1 22. The fibrous board of claim 21, wherein the board is greater
2 than 99% inorganic.

1 23. The fibrous board of claim 18, which exhibits no off
2 gassing.

1 24. The fibrous board of claim 10, wherein the binder is added
2 into the process as, or just after, the fiber is being produced or as the
3 mat or fleece is being developed.

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1 25. The fiberboard formed by the process of claim 8, wherein
2 water spray is added to the top and bottom surfaces at a rate of 10-
3 30% of fiber basis weight on each of the two surfaces.

1 26. The fiberboard formed by the process of claim 25, wherein
2 the water further comprises wetting agents to improve water
3 penetration into the fiber mat.

1 27. The fiberboard of claim 25, wherein the density and
2 thickness is determined by being subjected to a hot press at a
3 temperature sufficient to produce steam and for a period of time
4 sufficient to dry or nearly dry the board. Typical temperatures are
5 350°F-600°F.

1 28. A process comprising a fiber board incorporating fiber,
2 binder(s), fillers, and using a process wherein the binders are added at
3 or just after a point of fiberization and before formation of a fibrous
4 mat from which the boards are produced in a continuous manner,
5 whereby accumulating wheels of layers of built up fibrous mat of
6 desired thickness is pressed and dried into high temperature fiber
7 boards.

1 29. A process comprising a fiber board incorporating fiber,
2 binder(s), fillers, and using a process wherein the binders are added at
3 or just after a point of fiberization and before formation of a fibrous
4 mat from which the boards are produced in a continuous manner,
5 whereby accumulating wheels of layers of continuous mat of desired
6 thickness is pressed and dried into high temperature fiber boards.

1 30. A process comprising a fiber board, free of fillers,
2 incorporating fiber, binder(s) and using a process wherein the binders

3 are added at or just after a point of fiberization and before formation
4 of a fibrous mat from which the boards are produced in a batch
5 manner, whereby accumulating wheels of layers of built up fibrous mat
6 of desired thickness is pressed and dried into high temperature fiber
7 boards.

1 31. A process comprising a fiber board incorporating fiber,
2 binder(s), fillers, and using a process wherein the binders are added at
3 or just after a point of fiberization and before formation of a fibrous
4 mat from which the boards are produced in a batch manner, whereby
5 accumulating wheels of layers of continuous mat of desired thickness
6 is pressed and dried into high temperature fiber boards.

1 32. A pressed ceramic fiber board comprising a ceramic
2 fiber, an inorganic binder and a filler.

1 33. A pressed ceramic fiber board comprising about 70-98%
2 weight percent of alumina silica fiber, soluble fiber, mineral wool or
3 any combination of thereof, about 2-20% of powder or granular
4 potassium silicate, sodium silicate or other silicate materials, or
5 phosphate or phosphate based materials and combinations thereof,
6 and about 0-15% of clay, cement, perlite, or vermiculite and
7 combinations thereof.